

Public costs – environmental monitoring and enforcement

How could environmental compliance be enforced, given that the California Department of Fish and Game (CDFG) and NMFS have had steady, repeated budget cuts over the past decade? Already a lack of effective enforcement all along California's coast is a serious limiting factor in preventing illegal take of sea creatures. Between 1990 and 1995 alone, funding to CDFG dropped 60 percent, to \$3 million per year;⁴⁸ in 1995 alone, NMFS enforcement staff was cut 28%.⁴⁹ Even as of 1996, the Sacramento Bee reported that "[e]nforcement by Fish and Game is really, really, minimal;"⁵⁰ and since then it has continued to decrease. (See the series of articles in the Sacramento Bee entitled "Pacific Blues" for further discussion of funding cutbacks; the Malibu Marine Refuge Bill may also have documentation of these budget cutbacks, up to 1997).

Considering the general retrenchment of State and Federal funding, it appears that it would be impossible or irresponsible to permit any activity that required monitoring or enforcement of environmental compliance. The governments have proven unwilling or unable to provide the necessary resources.

In the event of a disaster (spill, explosion, etc.), how much public funding might be required for emergency response, clean-up, mitigation, compensation, etc.? The DEIS/R does not appear to address such costs, but should, as they are foreseeable. I've been told (but have not confirmed) that the Applicant's insurance would cover only a fraction of the potential kinds and amounts of damage. The public should know more about this important aspect of the project.

Public costs – Security

The CEC observes that "The Coast Guard now also deploys sea marshals to oversee so-called high-interest vessels such as LNG tankers. Furthermore, the Coast Guard now requires arriving LNG ships to provide a 96-hour advance notice of their arrival so that the Coast Guard can conduct a terrorism risk assessment and put in place appropriate mitigation before the ship reaches the shipping channel."⁵¹ How could this conceivably be achieved – in terms of cost and feasibility – in the case of two tankers arriving every three days?

BHP Billiton's own costs

The DEIS/R is incomplete even with respect to BHPB's own cost-benefits, ignoring considerations of price over time in its projected earnings calculations.⁵² For one thing, government and

⁴⁸ *Pacific Blues*, Dec. 22, at A28. (This amount is equivalent to 11 cents per Californian per year.) One marine scientist studying California Marine Refuges for over 2 1/2 years has reported that "[i]n all that time, we have zero sightings of (state) Fish and Game Wardens." *Pacific Blues*, Dec. 22, at A30.

⁴⁹ *Pacific Blues*, Dec. 24, at A4. NMFS has only seven enforcement agents for the 216,700 sq. mi. of waters under their jurisdiction off the coast of California; only one of these agent is responsible for the 80,000 sq. mi. of federal waters between Mexico and Monterey. *Pacific Blues*, Dec. 22, at A29.

⁵⁰ *Pacific Blues*, Dec. 24, at A4.

⁵¹ CEC at 14.

⁵² The application does not provide a quantity projection associated with the pro forma income projection. In places, statements are made like (CPA 3-1) "LNG receipts for first 2 years of service are projected at 675-800 MMscf/d and may increase modestly after." The pro forma income statement gives yearly income in dollars but not quantities of gas shipped. We need an annual quantity projection covering the income-earning years. The Applicant anticipates that LNG receipts during the first year of service will be a throughput volume of about 675 MMscf/d after startup, and increasing during the first year to about 800

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Section 15045 of the State CEQA Guidelines allows the lead agency "...to recover the estimated costs for procedures necessary to comply with CEQA on the project." Under the provisions of section 15097 of the State CEQA Guidelines, the lead agency "...shall adopt a program for monitoring or reporting on the revisions it has required on the project and the measures it has imposed to mitigate or avoid significant environmental effects." This program to ensure "environmental compliance" is funded under section 15045 above.

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Section 4.2.5 discusses this topic.

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Section 4.2.7.3 and Appendix C3-2 contain information on LNG carrier security.

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Amortization of costs is a fiscal rather than an environmental issue. The Administrator of MARAD reviews costs as part of the Record of Decision.

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industry experts agree that natural gas will likely become prohibitively expensive in approximately 20 years,⁵³ due to both diminishing supplies and reduced costs of renewable energy sources. Thus, the Project's 40-year lifespan would appear to be unrealistic; and amortization of costs over that period would likely be substantially inaccurate.

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Nor does the DEIS/R provide a clear sense of BHPB's own extraction and supply costs. The vast supplies of Australian natural gas touted by BHPB have not yet even been developed. These reserves are not a "sure thing" economically, insofar as technological factors, environmental regulations, delays and/or cost overruns could make their extraction impractical – particularly because they are located offshore in waters approximately 3,000 ft. deep.⁵⁴ If that happened, or if the Project were to come online before the Australian fields were developed (as the Applicant admits is possible), BHPB would turn to sources in Korea, Indonesia or elsewhere.⁵⁵ Without having a more definite assessment of where the gas might actually be sourced, it's impossible to know what the real delivery costs might be (or even what the composition and quality of the gas would be).

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Insufficient public notice

Public notice regarding the Project has been insufficient. The combined population of Oxnard, Ventura and Malibu alone is approximately 300,000.⁵⁶ In addition, many hundreds of thousands (if not millions?) of residents of Ventura and Los Angeles Counties visit the beaches from Malibu to Ventura on at least a semi-regular basis. Yet BHPB directly contacted less than 1,000 people about the scoping meetings;⁵⁷ and the notices published in local papers must be assumed to have "registered" with only a fairly negligible percentage of the potentially affected population. No notice was published in the area papers with the greatest circulations (including the Los Angeles Times and the LA Weekly).

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BHPB's paltry notification effort is confirmed in the low numbers of people who appeared at the scoping meetings in Malibu. No more than 50 residents appeared at the March, 2004 meeting; no more than 100 were present at the December 1 meeting (I was present at both, and took an informal head count). This is in a community where it is typical that more than 50 people will attend a City Council meeting to observe deliberations about just a single-family residence. Certainly a project of BHPB's magnitude would have received much greater community attention, had more people known about it.

Relatedly, it appears that a significant portion of the public "support" for the Project may be illegitimate. I personally know that at least one "supporter" testifying at the Dec. 1 Malibu

MMscf/d, which is the projected base load volume. Annual projections thereafter are anticipated at the base load of 800 MMscf/d. Comment Matrix, at 14.

⁵³ According to estimates made by U.S. EIA and the Norwegian government. See Clark, Woodrow, *Forget About Liquefied Natural Gas: We Need Diverse Clean Energy Now*, *The Electricity Journal*, Oct. 2004, at n.8 and accompanying text.

⁵⁴ 2-10.

⁵⁵ *Id.*

⁵⁶ Based on 2000 US Census figures of approx. 283,000, plus significant growth in the past four years.

⁵⁷ Presumably there is significant overlap among the 94 people who received email notice, the 63 parties who received letters and the 900 who were mailed postcards. ES-2.

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Section 1.3 addresses the scope of analysis required in the EIS/EIR. Sections 2.2.1 and 4.6.2 have been updated with information on natural gas quality. As stated in Section 4.6.2, all natural gas imported into California must meet quality standards established by the California Public Utilities Commission.

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Section 1.5 contains information on the public review and comment opportunities provided by the lead agencies in full conformance with the provisions of the law. Both the CSLC and MARAD/USCG have met or exceeded the public notice requirements for this Project (see Sections 1.5.1 and 1.5.3).

Comments of support or opposition are not considered a component of the environmental process. Such opinions are part of the record that will be provided to decision-makers when they consider the proposed Project.

meeting has been on BHPB's payroll, but he did not publicly disclose his affiliation.⁵⁸ There have also been widespread reports that BHPB has paid members of local community groups to testify (and write letters) on behalf of the project; and that some material inducement was provided to a number of teenagers. Such practices – which have definitely occurred to some extent, at least – may or may not be legal. But they're certainly unethical. In this light, agency reviewers should substantially discount any weight given to "supporting" comments.

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In addition, effective public access to documentation has been significantly limited. The transcripts of the scoping meetings are often unintelligible, and of substantially lower quality than any I have seen produced for other agency hearings, ever. And, as pointed out above (at *Credibility of project design and documentation*), the structure and organization of documents has been far from optimal. One must seriously wonder whether such practices, dissembling in effect, have been intended to make it difficult for the public to effectively participate.

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Meanwhile, the "fact sheets" that BHPB has distributed to the public, are nothing other than "sales brochures," designed foremost to persuade, not to inform. In many cases, these publications still contain information that was shown to be inaccurate following the scoping meetings and the first period of public comment (e.g., incorrect map distances, and other distortions).

Finally, it bears noting that if LNG imports were truly needed in California, public officials would be able to state the case to their citizenry. They have not done so. And now the California Manufacturers and Technology association has just sponsored a \$1 million campaign of public relations and lobbying efforts to unabashedly "sell" the concept of LNG import facilities to the public.⁵⁹ This act in itself demonstrates that the process is not being driven by demand, but by the profit motive of potential suppliers.

ALTERNATIVES

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The DEIS/R makes no case against the No-Action Alternative

Just as the Applicant says a lot about LNG and California but ultimately fails to put it all together into a compelling justification for the Project's need and purpose, it similarly fails to dismiss the No-Action Alternative. The DEIS/R provides no real argument against it; in fact, its entire discussion of "no-action" is just two short, inconclusive paragraphs⁶⁰ (the most relevant one is quoted above, near the beginning of the section, *Project need is not demonstrated.*)

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Curiously, the Applicant had more to say about it in the Scoping Draft. There, it relied on the argument that "[d]eferral of the Project could stimulate other LNG and natural gas import

⁵⁸ Agency reviewers: Ask me off the record, and I'll tell you who it was.

⁵⁹ Bradley, Bill, *Kissing Up to Arnold: A blatant picture of influence peddling in the Governor's Office*, LA Weekly (Dec. 2004) (<http://www.laweekly.com/ink/05/04/news-bradley.php>)

⁶⁰ 3-26.

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The transcripts of the public meetings were prepared by a certified court reporter. The court reporter has certified that they are an accurate representation of the proceedings. The transcripts reflect the comments that were made at the public meetings. They were posted on the project web site in order to afford the public access as early as possible in the process. The transcripts are included in the Final EIS/EIR. In addition, the transcripts are available on the Department of Transportation's Docket Management System under the project's identification number 16877 (<http://dms.dot.gov/search/searchFormSimple.cfm>, docket #16877).

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Sections 1.2.2, 1.2.3, and 1.2.5 contain additional information on the purpose and need for the Project. Section 3.4.1 provides a description of the the No Action Alternative. In accordance with NEPA and CEQA, each resource analysis section in Chapter 4 evaluates the impacts of the No Action or No Project Alternative.

projects...which could result in greater adverse environmental impacts than the Project."⁶¹ Presumably, this rationale was discarded either because the subsequent approval of at least seven LNG import facilities in North America underscores that the Project is not needed; or because the Applicant discovered that one or more of the approved facilities is expected to result in less environmental impact than its own project.

In any event, the No-Action Alternative remains uncontested.

No true alternatives were considered

The few alternative projects cited in the DEIS/R are clearly infeasible, and therefore not true "alternatives." Under State and Federal Law, the DEIS/R must evaluate a *reasonable* range of alternatives to the proposed action, including an environmentally preferable alternative.⁶² Notably, the leading so-called "alternative Deepwater port location," Ventura Flats, is not shown to have had any "reasonable prospect of feasibility."

The lack of any "environmentally preferable alternative" finds an inadvertent explanation in the Scoping Draft. In it, BHPB demonstrated that its "initial site selection criteria" did not include environmental factors whatsoever. Rather, it looked exclusively at "proximity to gas consuming region, proximity to existing gas transmission systems, site safety, site security, carrier ingress/egress, and special interest groups."⁶³ Beyond serving to disqualify the Application on the basis of its not having specified the required alternative, this implicit admission might also reveal a sense of the Applicant's true priorities – as well as how it might behave as corporate citizen, were the Application to be approved. Environmental protection is clearly not among its highest priorities. Had it looked more closely at the environmental context from the outset, this Project might not even have been considered for the current site.

An example of a true alternative might have been to site the FSRU significantly further from the shipping lanes and missile range, and outside the proposed boundaries of the CINMS expansion.⁶⁴ (Though I'm not sure whether or not such a location exists in waters shallow enough to accommodate the proposed pipeline riser technology; so perhaps an alternative technology would be required too.)

Potential alternatives rejected prematurely

Conservation and renewables

The Applicant is illogical in its rationale for not considering alternative demand side management (DSM) measures such as conservation.⁶⁵ The DEIS/R states that energy conservation measures were "not carried forward as an alternative in this EIS/EIR because they are ongoing

⁶¹ Scoping Appl., 5.1.1.

⁶² CEQA (CITE); 40 CFR §1505.2(b).

⁶³ Scoping Appl. 5.1.7.1.

⁶⁴ See Matrix, at 24.

⁶⁵ See discussion above, *Project purpose, need and objectives*.

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Sections 1.2, 3.1, 3.2, 3.3.1, 3.3.2, 3.3.3, 4.10, and 4.10.1.3 contain additional information on this topic. NEPA and the CEQA do not require the consideration of alternatives that are infeasible or that would require significant changes in governmental policy or legislation. NEPA requires consideration of a "reasonable" number of alternatives. In determining the scope of alternatives, the emphasis is on "reasonable." "Reasonable" alternatives include those that are practical and feasible from the technical and economic standpoint and using common sense (CEQ 40 Questions; #2a). Thus, the information must be sufficient to permit decision-makers to make a reasoned choice of alternatives with respect to their environmental impacts.

The EIS/EIR initially evaluated 18 locations for the FSRU as potential locations for the deepwater port. It built on previous California Coastal Commission studies that evaluated nearly 100 locations. Sections 3.3.7 and 3.3.9 discuss alternate locations and technologies that were considered.

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The application was developed by BHPB; the October 2004 Draft EIS/EIR was prepared by the MARAD, USCG, and CSLC. The Applicant is not responsible for designating the environmentally preferred alternative. Section 15126.6 of the State CEQA Guidelines governs such designation.

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See the response to Comment G434-19. Sections 3.3.1 and 3.3.2 address conservation and renewable energy sources as alternatives to the Project within the context of the California Energy Commission's 2005 Integrated Energy Report and other State and Federal energy reports.

activities that would occur whether or not the proposed Project is approved.”⁶⁶ But DSM measures are not a zero-sum game. The current State administration recognizes that it could implement further DSM measures, as well as promote further use of renewable energy sources, and that it would thus achieve an additional reduction in demand for natural gas. The main questions now involve how much further to go, and how much it will cost. The point is that these questions are still on the table in Sacramento, so it is premature for BHPB to be representing, in essence, that the State has done all that can do or intends to do.

The DEIS/R even acknowledges that the CPUC (a key player in determining the State’s future energy-use portfolio) has not yet completed its own examination of future energy efficiency policies, administration and programs.⁶⁷ But the DEIS/R ignores the obvious conclusion: at worst, the State does not yet know how much it could reduce dependence on natural gas. Instead, the DEIS/R jumps to the unwarranted conclusion that more gas must be needed. It confuses the State’s present uncertainty about which methods to use to reduce gas demand, with the notion that supply must therefore be uncertain.

The DEIS/R presents another spurious argument:

“Another reason that energy conservation is not carried forward as an alternative is that the USCG, MARAD, and the CSLC are acting solely as permitting agencies for a project proposed by a private applicant. These agencies do not have authority to initiate or implement broad-based, long-term energy conservation policy measures.”

The scope of the agencies’ authority has nothing to do with the range of criteria they must evaluate under CEQA and DWPA. The agencies are required to evaluate, *inter alia*, the purpose and need for the project, as well as its alternatives. Central to those evaluations are the factors which could influence natural gas demand.

Other LNG terminals approved

In its discussion of alternatives, the DEIS/R entirely omits discussion of the five new LNG terminal projects already approved in the U.S., and several more approved in Canada and Mexico. (See above, *More gas is already on the way*.) It does mention the Shell/Sempra project in Baja California, although it misleadingly calls it “proposed”⁶⁸ rather than “approved.” It also acknowledges that Sempra already has a deal in place to reroute pipelines so that gas will travel from Mexico to the U.S. The Sempra project does face legal challenges, but so would the BHPB project, most likely. So, all things considered, the fact that the Sempra project is already further ahead “in the pipeline,” should be the most dispositive factor.⁶⁹

⁶⁶ 3-2.

⁶⁷ 3-5.

⁶⁸ 3-7.

⁶⁹ Shockingly, the notion put forth that a supply would be less reliable because it would be subject to regional Mexican law borders on racism. So, to “return the favor,” allow me to ask: have the Australians not heard of NAFTA? This body of transnational law (despite its failings) would ensure that all project contracts would be enforceable with any and all necessary remedies being available.

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See the response to Comment G434-30.

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See the response to G434-8. Further, section 15040(b) of the State CEQA Guidelines states that “CEQA does not grant an agency new powers independent of the powers granted to the agency by other laws.”

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Section 1.2.2 contains additional information on this topic. Section 3.3.5 discusses LNG terminals in Baja California. Several LNG terminals have been approved in the United States, Canada, and Mexico; however, none will provide additional natural gas supplies or capacity exclusively to California. California competes with other natural gas markets within the U.S. and so would not necessarily benefit from increased supplies elsewhere, given the demand for natural gas in the U.S.

More to the point, the DEIS/R fails to make any substantive assessment of what the potential effects on California's gas supply would be when *any* of the new approved facilities are in operation. And precisely because 85% of the State's current supply is imported from the other side of the Rocky Mountains, any increase in supply, anywhere on the continent, could only increase the likelihood that California will continue to receive a reliable supply of natural gas.

Meanwhile, the DEIS/R is correct in pointing out that the Sempra project would have significant environmental impacts. But they would be reasonably comparable to those which could be suffered in the CINMS and/or along the state-designated "ecologically sensitive" waters and beaches which span much of the shoreline nearest to the FSRU and pipeline. Thus, in dismissing the Sempra project on environmental grounds, the DEIS/R implicitly dismisses the BHPB Project too.

"Alternative" offshore sites rejected prematurely

In assessing potential offshore sites, the DEIS/R states that it used "[e]valuation criteria from the CCC [1978 Offshore LNG Terminal] Study, updated to reflect current conditions"⁷⁰ – without specifying what "updated" means in this context. It specifies these criteria as:

- (1) ownership, use, and character of the area around each site zone;
- (2) site availability;
- (3) recreational resources;
- (4) marine and terrestrial biology;
- (5) geologic and engineering considerations affecting terminal feasibility;
- (6) choice of design types;
- (7) pipeline routing feasibility and impacts;
- (8) maritime conditions; and
- (9) construction costs.

As detailed in this section and elsewhere in this Comment,⁷¹ these nine criteria all share two things in common: A) they each embody unmitigated and/or unmitigable significant impacts with respect to the proposed Project; and B) many, if not all, of the so-called "alternative" offshore sites are comparable to the proposed Project under most, if not all, of the criteria. Thus, as will be shown, many of the alternative offshore sites should either have been more closely examined in the DEIS/R than they were, or the proposed site should be rejected as well.

The DEIS/R notes that the 1978 Offshore LNG Terminal Study rejected **potential sites between Pt. Conception and the Oregon Border** due to weather conditions; it then claims that such sites were reconsidered to see if "conditions had changed."⁷² Well, of course weather conditions would not have changed substantially since then. But the technological context has changed

⁷⁰ 3-13,14.

⁷¹ Or perhaps by other commentators, if time does not permit me to document the entirety of my analysis.

⁷² 3-10.

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See the response to Comment G434-33.

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Sections 3.3.6 through 3.3.9 contain additional information on this topic.

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radically – offshore platforms, drilling, pipelines, and tankers have all evolved markedly. Yet the DEIS/R gives no indication that the feasibility of siting a project anywhere North of Pt. Conception was at all considered – beyond the observation that the weather can be rough.

If rough weather can be a deal-breaker (as it maybe should be), then the Applicant's preferred site must be rejected as well, for it experiences weather conditions roughly comparable to those of the central California coast. The main difference is not in storm intensity, but rather in frequency; the Project location experiences storms just as large, only somewhat less often. Yet it would take only one storm to produce an accident with irreversible loss of life or environmental damage. Because the DEIS/R has not provided any direct comparison between the weather data of the several locations, the presumption must be that either all contemplated California offshore sites would be suitable, or none of them.

Similarly, the **San Diego area** was rejected exclusively on grounds that also apply to the proposed location. The DEIS/R cites the presence of US Naval activity in San Diego as a deal-breaker; but that also exists at Pt. Mugu and in the offshore Sea Range. That a San Diego site would be near shipping lanes was also considered a deal-breaker; but in the proposed location, the lanes would be 2 NM from the FSRU, less than half the distance it takes a tanker to come to a stop (~5 miles). And problematic security in San Diego was also cited as a deal-breaker, due to the presence of recreational boat traffic; but there, military patrol boats would obviate that threat, making the comparison of security concerns a wash. The point is not that the two locations are exactly the same; they're not. It's that they are sufficiently comparable that either A) the San Diego location should not have been dismissed so readily, or B) both locations should be rejected.

In addition, if the San Diego and other so-called alternative locations were examined more thoroughly, it's quite possible that they would have been found to provide benefits that the proposed site does not have. So the mere possibility that other sites might be somewhat less suitable in some regards is not sufficient basis to have dismissed them. Unless they have been assessed for both their negative and positives, they cannot be called true alternatives.

The DEIS/R rejects **Pt. Conception** (previously approved in the 1978 study) solely on the basis of letters from property owners stating that they "are considering putting a conservation easement on the property."⁷³ But such an easement would be analogous to the proposed expansion of CINMS – the main difference being that the CINMS proposal is well in-progress and stands a reasonable chance of being approved, whereas the Pt. Conception owners' conservation easement remains hypothetical. Again, the point is not that the Pt. Conception site is preferable; it would likely be problematic for environmental reasons too, with or without a reasonable conservation easement. The point is that, if Pt. Conception can be rejected on such grounds, then surely the current location must be rejected too.

Deer Canyon was rejected on the grounds of:

⁷³ 3-13.

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Most locations along the West Coast experience adverse wind/wave conditions at some time during the year. The locations of the proposed Project and the Santa Barbara Channel alternative are sheltered to some degree by the Channel Islands and as a result have fewer instances of adverse wind/wave conditions than locations north of Point Conception.

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Section 3.3.6 contains additional information on this topic.

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Section 3.3.7.3 contains additional information about the potential for an alternative at Point Conception.

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Sections 4.13.2.2, 4.7.1.4, and 4.20.1.5 contain additional information on this topic. According to CINMS staff, installation of the FSRU and pipeline at the proposed location would not automatically preclude the CINMS from expanding its boundaries. The 2006 Draft Management Plan/Draft EIS for the CINMS "does not propose a sanctuary boundary expansion, but calls for the continuation of a comprehensive, scientifically based, open public process that will lead to a decision in the future" (Mobley 2006).

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- significant visual impacts on nearby recreation areas – the same areas for which the DEIS/R acknowledges the Project would pose significant unmitigable risks;
- potential conflicts with the Pacific Missile Range (now called the Sea Range) – the proposed Project would be even more proximate, so would potentially conflict to a greater degree; and
- a potential conflict with a State oil lease block holder – but lease blocks still exist in the area, and the Federal government is currently considering opening more.

The principle reason a **Camp Pendleton** site was rejected was that the Marine Corps initially opposed it. However, the Marines have subsequently welcomed it as a possibility.⁷⁴ The DEIS/R therefore prematurely dismisses it as a potential alternative. Camp Pendleton is comparable to the proposed Project location in virtually all significant respects. The presence of military operations is comparable; the DEIS/R merely speculates, without substantiation, that “use of the ocean offshore of Camp Pendleton by the Department of Defense could be precluded by the safety zone that would surround the LNG terminal and might also be affected when LNG carriers transit to and from the facility.” Certainly as much could be said of the proposed Project location.

There are a few noticeable differences between Camp Pendleton and the Project location. Environmental impacts might be somewhat lower at Pendleton, for whereas its adjacent coastline has sensitive areas comparable to those between Pt. Dume and Pt. Mugu,⁷⁵ it does not have a CINMS situated to one side. The DEIS/R suggests that population numbers are significantly different, yet the total resident population of the two cities it cites is substantially less than the population near the Project location: the combined population of San Clemente (50,000)⁷⁶ and Oceanside (161,000)⁷⁷ is 211,000, whereas the combined resident population of Ventura, Oxnard and Malibu is approximately 300,000.⁷⁸ Moreover, much (not all) of the resident population near Camp Pendleton already accepts the risk of long-shot, high-harm accidents, having chosen to live near both a nuclear facility (San Onofre) and a military base; whereas Malibu residents are decidedly more risk-averse in that regard (recall that Malibu residents successfully opposed the siting of a nuclear reactor in the 1960s).

More generally, the DEIS/R relies on the 1978 LNG Terminal Study’s rejections of offshore sites more broadly than it should. For instance, many potential sites were immediately rejected in 1978 for being in waters deeper than 229 meters,⁷⁹ yet technology now enables consideration of much deeper waters – the Applicant’s FSRU would itself be moored in waters 884 meters deep. The DEIS/R properly should have gone back to look at which specific sites might have been outrightly rejected in 1978 for reasons of water depth, but it has not.

⁷⁴ Marine Corps letter of June 15, cited at 3-17.

⁷⁵ For a listing of some of the sensitive areas, see section above, *Consistency with local plans*.

⁷⁶ www.city-data.com/city/San-Clemente-California.html.

⁷⁷ censtats.census.gov/data/CA/1600653322.pdf.

⁷⁸ See *supra*, note accompanying section *Insufficient public notice*.

⁷⁹ 3-12.

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Section 3.3.7.4 contains additional information on this topic.

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Section 3.3.7.4 contains additional information on this topic.

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Technology has advanced so that floating offshore LNG terminals can be installed at greater depths than were considered in the 1978 CCC study. Section 3.3.7.2 has been updated with this information. Section 3.3.7.4 provides the criteria used to evaluate offshore locations.

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Other problematic "alternatives"

Some of the "alternative" pipeline routes were rejected on the basis of seismic hazards comparable to those of the proposed pipeline locations, e.g., at "West side of Channel Islands," "Alternative Offshore Pipeline Route 2," and "Alternative Offshore Pipeline Route 3."⁸⁰ Either they should have been more seriously considered, or the current route should be rejected for the same reasons.

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Meanwhile, "Alternative Offshore Pipeline Route 1" was rejected on the basis that it would cross cables⁸¹ – as would the Project pipeline route.

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The DEIS/R states, in effect, that membrane-type storage tanks were rejected from consideration solely because Moss tanks were found acceptable.⁸² That's not a legitimate basis for exclusion.

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Alternate competing uses

No real assessment has been made of the cost-benefit trade-offs associated with increasing the CINMS area to encompass the project area (preventing the BHP project); or whether the two uses could conceivably coexist, and if so, what the risks and conditions might be.

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No assessment has been made of conflict or interaction with potential oil and gas lease sales in the project area. Indeed, the Applicant states:

(EA 5-374) "The potential for mineral resources exploration and development at the site or along the pipeline is not significant because of the moratorium in California on drilling new leases.... [T]here have been no past lease sales or anticipated lease sales by the federal government in the Project area."⁸³

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However, pending federal legislation foresees (re)opening such areas to oil and gas development. The application should be required to assess the comparative cost-benefits of such alternate competing uses of the site area.

(IN)CONSISTENCY WITH LOCAL PLANS

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The DEIS/R makes no mention of Malibu in its section on "Consistency With Regional and Local Plans."⁸⁴ It should have addressed consistency with Malibu's Local Coastal Plan (LCP), as well as its General Plan. Malibu is the city closest to the FSRU, and is directly downwind and downcurrent under prevailing conditions. The ~12,500 citizens and environment of Malibu would be most at risk if a vessel or the FSRU were to drift to shore (for instance), and would

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⁸⁰ 3-24.

⁸¹ 3-23.

⁸² 3-22.

⁸³ Matrix, at 14.

⁸⁴ 1-20.

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Section 3.3.10 contains additional information on this topic.

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Section 2.3.1 contains a revised discussion of the route of the offshore pipelines and Section 3.3.10 discusses offshore pipeline route alternatives. Both sections discuss the crossing of Navy RELI cable lines.

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Section 3.3.9 discusses this topic.

G434-45

The FSRU would be located outside of the current boundary of the Channel Islands National Marine Sanctuary (CINMS) and vessels associated with Cabrillo Port operations would not be expected to enter the CINMS. Sections 4.7.1.4, 4.13.2.2, and 4.20.1.5 discuss the potential expansion of the CINMS boundary, which is not proposed at this time. Sections 4.7.4, 4.15.4, 4.16.4, and 4.18.4 describe potential impacts on the marine environment and proposed mitigation measures to reduce those potential impacts.

G434-46

Sections 4.10.1, 4.10.4, 4.20.1, and 4.20.3 discuss this topic.

G434-47

No part of the Project would be located in Malibu; therefore, its consistency with the Malibu Local Coastal Plan is not at issue.

G434-48

See the response to Comment G434-45.

likely be most impacted by any chronic effects of downstream emissions. The DEIS/R substantially ignores such concerns.

It is startling that Malibu is discussed only in the section on view impacts (and not completely nor accurately, at that). Not only is its resident population closest to the FSRU, hundreds of thousands of people visit its beaches each year. Many of its beaches from Pt. Dume to its western limit near County Line are state beaches (e.g., Pt. Dume, Westward, Zuma, Leo Carillo, Thornhill Broome, etc.), and many carry state the designation of "ecologically sensitive." The State Department of Fish and Game has called for the creation of a "national park-like marine sanctuary" in all state waters between Pt. Dume and Pt. Mugu.⁸⁵ Similarly, between Malibu and Pt. Mugu there are a number of state parks which also serve the public (Leo Carillo, again, Sycamore Canyon, La Jolla Canyon and Valley, etc.) and which carry the "ecologically sensitive" designation.

Relatedly, a 1997 UCLA study⁸⁶ on Malibu's marine life found that within state waters extending from east of Pt. Dume to Malibu's western limit are a number of threatened or endangered species. This study was noted by the public during the scoping phase of the EIS/EIR, but apparently has not been examined by the Applicant.

The Project maps are deceptive in representing Malibu as a small circle at Civic Center, yet Malibu extends 26 miles along the coastline – the majority of which is inhabited. A reviewer unfamiliar with the territory could conceivably assume that the coastline between Civic Center and Pt. Mugu is unpopulated; but in actuality, much of it is developed (only the westernmost portion, comprised mainly of state beaches, is not developed residentially or commercially).

Also with regard to consistency, the DEIS/R finds that the Project would be consistent with the proposed expansion of Channel Island National Marine Sanctuary (CINMS). This is true only in the limited technical sense that the proposed CINMS expansion has not yet been finalized. Because the Project would likely be inconsistent with CINMS when the expansion is finalized, and because the CINMS proposal has been "in the pipeline" since before BHPB's project was proposed, the DEIS/R should at least have analyzed their *potential* interaction, rather than dismissing the matter on a technicality. Citizens should have the opportunity to know what they might be giving up if the Application were approved and the CINMS expansion were subsequently abandoned due to its being found inconsistent with the Project in any way.

G434-47
cont'd

G434-48

⁸⁵ *Pacific Blues*, Dec. 26, at A1.

⁸⁶ See study authored by UCLA Professor Richard Ambrose in support of Malibu Marine Refuge proposal, State bill, SB 1006, 1997. I have hard copy of the study for any reviewers who wish to examine it.

DESCRIPTION OF THE PROPOSED FACILITIES

2.3 PDF 137

FSRU design uncertainties

With respect to design, construction, and fabrication, "no single [code or] standard directly addresses the FSRU..."⁸⁷ This is to be done "in consultation with" government agencies. Given that the Project embodies many novel combinations and applications of both existing and new technologies, such standards must necessarily be in place before its potential can be fully and accurately assessed.

In regard to such technical standards, the DEIS/R states that, after their development, they should be verified by a third-party agent "approved by" the USCG and the CSLC.⁸⁸ Rather, to help ensure independence and objectivity, any third-party verification agent should be *appointed* by the governmental agencies.

The DEIS/R claims that the FSRU's "hull would be designed with a bow and a stern shape to minimize wave motion, thus providing a stable platform for operations."⁸⁹ That would account for two dimensions of motion, but the platform would still be susceptible along its sides to sudden changes of swell direction, mixed swell direction, or rogue waves. The DEIS/R admits that "the directional wave spectra (distribution of wave energy with wave direction) at the site is much more complex than that in the open ocean."⁹⁰ It thus appears that stability has been incompletely assessed.

The FSRU dimensions given in section 2.2.1.1 and the artist's rendering on the facing page (Figure 2.3-1) are inconsistent. Freeboard is stated as being ~57.4 ft. and the tanks as adding another ~22 ft. in height. But the rendering shows the tanks to be approximately twice as tall as the freeboard, i.e., another ~125 ft. above the deckline. That's a radical disparity. Which is correct? What, if any, assessments have been made using the wrong measurements?

It appears that the only onboard pathway for crew to move between the aft deckhouse and forward regasification unit is via a gangway that reaches over and across the three Moss tanks.⁹¹ No discussion is provided regarding the implications in cases of heavy weather or accident. For instance, during storms, winds can be significantly stronger at that elevation than at the deck elevation of a typical tanker ship. Could a man be blown off, or overboard? Under such conditions, would crew access between the deckhouse and regasification facility be restricted? The DEIS/R does not address any of this.

Or, in the case of an accident involving damage to one or more of the Moss tanks, would crew access between bow and stern be restricted? What then if the accident also caused damage to the regasification unit – would crew be prevented from accessing it to assess the damage? Note that

⁸⁷ 2-2.

⁸⁸ 2-9.

⁸⁹ 2-10.

⁹⁰ 4.1-10.

⁹¹ See Figure 2.3-2. (p. 2-11).

G434-48.1

Section 2.1 contains information on design criteria and specifications, final design requirements, and regulations governing the construction of the FSRU. The Cabrillo Port must be designed in accordance with applicable standards, and the U.S. Coast Guard has final approval. Section 4.2.4 contains information on Federal and State agency jurisdiction and cooperation. The Deepwater Port Act specifies regulations that all deepwater ports must meet; Section 4.2.7.3 contains information on design and safety standards for the deepwater port. Section 4.2.8.2 contains information on pipeline safety and inspections. Impact EJ-1 in Section 4.19.4 addresses additional pipeline design requirements in areas of low-income and minority communities. The EIS/EIR's analyses have been developed with consideration of these factors and regulations and in full conformance with the requirements of NEPA and the CEQA.

G434-48.1

G434-49

The regulations implementing the Deepwater Port Act (33 CFR 149.625 (a)) require that "each component, except for hoses, mooring lines, and aids to navigation buoys, must be designed to withstand at least the combined wind, wave, and current forces of the most severe storm that can be expected to occur at the deepwater port in any 100-year period."

G434-49

G434-50

By definition, a 100-year wave event is expected to occur once every 100 years on average over the course of many hundreds of years. The estimated 100-year wave height (7+ meters) and peak wave period (16+ seconds) at the FSRU exceed any waves generated locally by strong northwest winds. The most extreme waves are primarily generated in the deep ocean and propagate through the Channel Islands.

G434-51

G434-52

Section 2.1 contains information on design criteria and specifications, final design requirements, and regulations governing the construction of the FSRU. The Cabrillo Port must be designed in accordance with applicable standards, and the U.S. Coast Guard has final approval. The Deepwater Port Act specifies performance levels that all deepwater ports must meet; Section 4.2.7.3 contains information on design and safety standards for the deepwater port. Section 4.2.8.2 contains information on pipeline safety and inspections. The EIS/EIR's analyses have been developed with consideration of these factors and regulations.

G434-50

Section 2.2.2 contains an updated description and figures of the

FSRU.

G434-51

Issues of crew safety and the design of the FSRU would be addressed in the USCG review of the detailed design. The USCG considers the safety of the crew in its review and would not approve designs that would be unsafe for the crew.

G434-52

See the response to Comment G434-51.

there is a helipad only at the stern of the FSRU. So under what conditions might a tug be required to "ferry" crew between fore and aft sections – and would it even be possible for crew to board the fore section from a tug? Again, all such issues appear to be unaddressed.

The Applicant states that the FSRU would be built in Japan, Korea, Spain or Finland, and towed to its mooring point by two ocean-going tugs.⁹² This means that it would have to be designed and built to withstand not just the 100-year maximum sea conditions in the Southern California Bight, but the maximum reasonably foreseeable *global* high-seas conditions. The DEIS/R provides no indication that this has been done. Coming from Japan or Korea, the FSRU would have to withstand North Pacific seas – generally the second-heaviest on the planet. Coming from Spain or Norway it would have to withstand the Southern Ocean – typically the world's highest and most violent seas. (It could not be brought through the Panama Canal, as the max vessel width that the locks can accommodate is 33.5 m,⁹³ or roughly half the 65 M width of the FSRU.)

FSRU mooring

Could the FSRU come unmoored and drift towards shore? We don't know, because the specs for the mooring and risers have not been finalized. We do know that the "conventional" drag anchors used⁹⁴ would be set in sediment and/or sandy bottom; and that such anchors – as opposed to rock anchors – are susceptible to being pulled out of place. While there would be nine of them, the DEIS/R does not provide an assessment of their combined load tolerance. Presumably, under normal conditions they would hold the FSRU without problem. But how well might they withstand a tsunami, for instance? As tsunamis produce substantial subsurface energy, the entire length of the mooring cables would be subject to tensioning stress – of an amount that has apparently not been assessed. [For further discussion of mooring vulnerabilities, see *Terrorism and related threats unaddressed(?)*, below.]

FSRU Safety systems

The Applicant states that the outer shell of the forward Moss tank would be "fitted with a special barrier...to provide enhanced protection against fires or other potentially dangerous process area incidents."⁹⁵ Why has the shell of the aft tank facing the deckhouse and crew quarters not been designed with similar protection? Apropos, the DEIS/R provides no assessment of the hazard to deckhouse crew in the event that the adjacent (or any) Moss tank were to explode. With living accommodations for up to 50 people,⁹⁶ this is a glaring omission.

Many of the safety systems would be computer-controlled. The DEIS/R does not discuss what might happen were such controls to become inoperable, or malfunction for whatever reason. And, although the question was previously raised in scoping comments, the DEIS/R does not

⁹² 2-33.

⁹³ See Panama Canal Handbook, <http://www.shipsagent.com/panama-canal-info.html> ("The lock chambers are 304.8m long and 33.53m wide, with depth of water over mitre sills of 12.4m at the most restrictive point, the S end of Pedro Miguel Locks."); or Carroll, J. V., *A New Course for the Panama Canal*, U.S. Navy League website: www.navyleague.org/seapowerfa_new_course_for_the_panama_cana.htm

⁹⁴ 2-17.

⁹⁵ 2-21.

⁹⁶ 2-23.

G434-53

G434-53

Section 2.2.2.5 discusses this topic.

G434-54

G434-54

Please note that oil and gas exploration structures of similar size to the FSRU are constructed worldwide and towed regularly hundreds and often thousands of miles. There are well-established procedures for this process.

G434-55

Since the FSRU would be designed and built to withstand the effects of a 100-year storm, it is fully expected to withstand the rigors of a trans-ocean voyage. Before it is transported to the U.S., the FSRU would have to be certified by an international classification society. The towing vessel would have to be a classed vessel that would be fully capable of towing the FSRU safely under all reasonable conditions of operation. The crew would have to be trained and experienced in towing operations. In addition, the Applicant would be required to develop and implement a voyage or tow plan for the FSRU's transportation. The tow or voyage plan would describe measures to ensure the voyage would not pose a threat to life, property or the environment and would include at a minimum the following:

- A provision that the FSRU would not be manned throughout the duration of the voyage;
- An evaluation of long-term weather forecasting and sea conditions along the intended route;
- Contingency measures, including the location of harbors or protected waters of safe refuge to take shelter in the event of severe weather;
- A comprehensive communications plan.

G434-57

The voyage would not commence until an appropriate "window of opportunity" presents itself to minimize the risk of encountering severe weather or other activities (e.g., planned naval fleet ops) that could negatively impact the voyage. Once the FSRU reaches its destination, the Coast Guard Officer in Charge, Marine Inspection will ensure that the structure is fully capable of service as a deepwater port (see Section 2.5.1).

G434-55

The USCG would review and approve all aspects of the Project design before implementation to ensure that it meets all applicable engineering and regulatory standards.

If the FSRU were to become unmoored, the patrolling tugboats could also be used to hold in place. Section 4.3.1.4 contains additional information on this topic.

G434-56

The USCG would review the FSRU's design and the required HAZOP study to ensure that it is safe for the crew to operate. See Section 4.2 and Appendices C1 and C2 for the revised safety and risk analyses.

G434-57

Section 2.2.2.5 contains revised text on this topic.

address the potential need to have redundant safety controls both fore and aft. If, for instance the aft Moss tank exploded and disabled computer controls in the adjacent deckhouse, the shut-down systems in the regasification unit in the bow might not be "aware of" the incident; and crew would be prevented from readily accessing the bow because the gangway over the Moss tanks would be inaccessible. An ensuing fire could spread to the foredeck even while the regasification unit continued to operate.

Or, if there were a fire in the single control room, damaging controls or making them inaccessible, the computer-controlled tanks, heaters, pressure monitors, etc. could malfunction without recourse. Why then is there no back-up control station, situated on a remote part of the FSRU?

(These scenarios are examples of "multiple and/or compound failure," as discussed further below.)

Uncertainties in the gas transport design

The Project description states that the two seabed pipelines "would be fitted with independent flow meters, one onboard the FSRU and one onshore at the metering facility...such that if one meter were down the other would still measure the total flow."⁹⁷ But if the onshore meter were down, there would be no way to be certain where the flow was going. The FSRU meter could be showing a full flow rate, even while gas was escaping through a leak anywhere along the pipeline. Thus, continuous operation of the onshore meter would be critical; if it went down, the whole system would have to be shut down. The DEIS/R does not address this contingency.

One might argue that having both a pipeline leak and an inoperational meter would be "unforeseeable." But that is precisely what could happen in the event of an earthquake (see discussion below, *Multiple and compound failures*).

No inspection and maintenance protocol been specified for the risers, one of the most vulnerable and critical links in the gas transport chain.⁹⁸

The so-called "intelligent pigging system" is unproven, requires two pipelines, the roundtrip approach seems tenuous, and it doesn't address the flexible risers.

The DEIS/R states that the shore-crossing pipelines would be installed by laying them on the seafloor, then pulling them "landward through the pre-drilled holes. The pulling operation would be continuous to minimize the chance of hole collapse."⁹⁹ This plan would appear problematic at best. The proposed "tunnel" would be substantially curved, such that the pipe, no matter how

⁹⁷ 2-17.

⁹⁸ See Comment Matrix, at 24. ("Hydrostatic testing of the pipeline would occur only once, after construction and prior to commissioning. Subsequent pipeline inspection and testing would be performed using smart pigs. The flexible risers will not be piggable. API17 J states "The requirements for the manufacturer to design and implement flexible pipe inspection, monitoring and condition assessment systems and procedures should be specified." Flexible riser inspection may include periodic hydrostatic testing or newer inspection technologies including fiber optic monitoring, eddy current testing, or electromagnetic and radiographic techniques.")

⁹⁹ 2-40.

G434-57
cont'd

G434-58

G434-59

G434-60

G434-61

G434-62

G434-63

G434-58

Section 2.2.2.5 discusses FSRU safety systems.

The USCG would review and approve all aspects of the Project design before implementation to ensure that it meets all applicable engineering, regulatory, and safety standards. The Operations Manual would include all contingencies, including but would not be limited to back-up controls, as indicated in Sections 4.2.7.3 and 4.2.7.6.

G434-59

See the response to Comment G434-57. Impacts PS-1 and PS-2 in Section 4.2.7.6 address safety procedures in response to a release of LNG at the FSRU or along the pipelines.

G434-60

Section 2.2.2.5 describes the safety systems that would be used on the FSRU and Section 2.4 describes onshore operations. Section 4.2.8.4 discusses safety systems for the pipelines.

G434-61

See the response to Comment G434-58.

G434-62

Section 2.3.1 contains additional information on this topic.

G434-63

The installation of shore crossing pipelines has been modified since issuance of the October 2004 Draft EIS/EIR, using horizontal directional boring instead of horizontal directional drilling. Section 2.6.1 has been updated to include a discussion of this topic. As discussed in the section, "HDB has been used since 1977 to install large-diameter pipelines beneath environmentally sensitive areas such as waterways and surf zones." Therefore, the likelihood of failure of the shore crossing method is unlikely.

flexible, would likely have to be pulled through in fits and starts: because of the curvature, the pipe's leading edge would continually snag on the walls of the tunnel. At the same time, the pipe could drag rocks and sediment into the hole along with it, which could further impede its progress. The material around the hole's ocean-side openings would be sand and sediment – materials which would not support a tunnel-shape drilled through them for very long, if at all. The action of currents, waves, and or tides could also contribute to the instability of the holes' openings. So this plan, on its face, does not appear to “minimize the chance of hole collapse.”

What are the implications of that? If the entire seabed pipeline were already in place, and only then BHPB discovered that its shore-crossing pipeline plan would not work, what then? It would appear that the only other option would be to trench the pipeline routes, creating sedimentary disturbances having unacceptable, unmitigable environmental consequences. The shore-crossing pipeline plan deserves more critical examination than it has so far received.

Would it not make more sense to add the gas odorant at the FSRU (rather than at the Ormond Beach metering station), so that leaks along the pipeline route would be more readily identifiable by commercial and recreational boaters (as well as by marine life)?

Inspection and maintenance

The DEIS/R specifies that a number of Project sub-systems would be inspected only annually. This would seem to be an unacceptably long interval for an overall system which requires each of its constituent parts to be working flawlessly. A few examples of sub-systems specified for annual inspection include:

- Firefighting system;¹⁰⁰
- Ballast tanks;¹⁰¹
- ROV surveys of the risers, anchors, and pipeline-ending manifold.¹⁰²

Moreover, the DEIS/R states that “The FSRU would be inspected annually by a classification society with a special survey by the classification society after five years and every five years thereafter.”¹⁰³ This would appear to represent an unacceptably long period between inspections.

Many other inspection and maintenance protocols are specified as being *periodic*. (E.g., “Periodic internal inspection of the pipeline would be conducted using an intelligent pig, which would determine the pipeline’s structural integrity.”¹⁰⁴) All such intervals should have been more precisely defined, insofar as the avoidance of many safety and environmental risks would depend on fulfilling rigorous inspection and maintenance protocols.

¹⁰⁰ 2-49.

¹⁰¹ 2-51.

¹⁰² 2-52.

¹⁰³ 2-53.

¹⁰⁴ 2-52.

G434-63
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G434-64

G434-65

G434-64

The Project has been modified since issuance of the October 2004 Draft EIS/EIR, and the main odorant station has been relocated to the FSRU with a smaller backup odorant facility onshore. Sections 2.4.1.3, 4.2.7, 4.7.4, 4.12, 4.18.4, 6.2.2, and 6.2.3 contain updated text on this topic.

G434-65

Applicable safety standards and agency responsibilities for review, inspection, and enforcement of safety standards are described in Section 4.2.6.

Decommissioning

Impacts of decommissioning are substantially unaddressed, and should be determined now, in greater detail. To state that "Removal or retention of these components will be evaluated at the time of decommissioning for environmental conditions, current regulatory requirements, and environmental benefit,"¹⁰⁵ is to suggest that any indeterminate degree of risk is acceptable. There is no place for such "hope for the best" thinking in a project of this scale and complexity.

The closest the DEIS/R comes to addressing impacts of decommissioning is in stating, "Where removal of Project facilities is planned, many decommissioning impacts are expected to mirror those of construction."¹⁰⁶ The implication is that all, or virtually all, of the assessed impacts of construction should have been doubled – but they were not. Such impacts are reasonably foreseeable. They also should have been included in all cumulative assessments, but were not.

G434-66

G434-66

See the response to Comment G437-20.

The projected FSRU in-service life is a maximum of 40 years. Because there are too many unknowns regarding the environment 40 years from now, specific impacts are not reasonably foreseeable. As noted in Section 2.8, supplemental NEPA/CEQA documentation would be required prior to the decommissioning of the FSRU.

G434-67

Section 4.3.1 has been updated to clarify the topic. Project-related LNG carriers would neither cross nor enter the Santa Barbara Channel TSS under normal operating conditions.

MARINE TRAFFIC

4.3, PDF 335

Total vessel transits

The DEIS/R contains a number of discrepancies in numerical estimates of marine traffic; these cloud the assessment of risk. On page 4.3-1, it states:

"Annual commercial vessel traffic in the area consists of approximately 5,000 large (more than 300 gross tonnage [GT]) vessels transiting the coastwise TSS to and from Los Angeles/Long Beach (10,000 transits in total), approximately 250 large commercial vessels crossing these traffic lanes to enter and leave Port Hueneme..."

G434-67

Meanwhile, Table 4.3-1 shows that a total of 1,444 vessel transits in the Project area would occur annually; but this number omits fishing vessels transits (in the same table), which adds another 2,208, for a total of 3,652 transits. Further, Table 4.3-3 states that total transits to and from Port Hueneme would be 1,560.

How much overlap is there among those numbers? How does "10,000 transits in total" reconcile with the total of 3,652 transits? Would the transits to and from Port Hueneme be additional or is some fraction of them already included in the estimates? In short, vessel transits are stated in multiple overlapping terms (in text and in tables), making problematic any assessment of the total transits that the Project would add to existing traffic.

¹⁰⁵ "As stated in Section 3.8, all components of the Project will be removed with the possible exception of the exposed pipeline and the ocean floor anchors. Removal or retention of these components will be evaluated at the time of decommissioning for environmental conditions, current regulatory requirements, and environmental benefit." Matrix, at 24.

¹⁰⁶ 4.1-3.

In any case, more recent (and more formal) vessel traffic data is necessary. The published data used dates from 1995,¹⁰⁷ but anecdotal observation indicates that traffic has increased significantly since then. Also, more specific data for recreational boating traffic is needed. The Applicant states, "There is no source for official counts of recreational boats on the Sea Range (U.S. Department of the Navy 2002)."¹⁰⁸ In too many cases, BHPB has relied on anecdotal estimates provided by personnel at Port Hueneme, without providing any analytical basis on which to confirm or refute these "estimates."

G434-68

Aside from the vessel traffic data which the DEIS/R provides, it substantially ignores the many hundreds of recreational boats that travel to the Channel Islands (and beyond) from L.A.-area marinas, including Marina Del Rey, King's Harbor (Redondo), San Pedro and points South. (These would not have been identifiable by the Port Hueneme personnel consulted.) Much of this traffic passes directly through the project area. Similarly, southbound yacht regattas from Santa Barbara to King's Harbor pass through the zone; these can consist of hundreds of sail boats at a time.¹⁰⁹ On a per-transit basis, these trips are potentially more significant than ones from Hueneme and Ventura Harbor because while en route they necessarily pass through or near the FSRU location, whereas many of the latter go directly to and from the Channel Islands without heading further east towards the FSRU. All of this should have been addressed.

G434-69

Transits of BHPB tankers and support vessels

The specified numbers of tanker, tug, and other support vessel transits to and from the FSRU are also discrepant – and would apparently be significantly higher than BHPB has stated. (Because the numbers supplied by BHPB are contradictory and indefinite to some degree, it's possible that my analysis of vessel transits (below) could be off in a detail or two. The important point is that, regardless of the numbers actually are, BHPB appears to have understated them for the reasons I note.)

G434-70

G434-68

Section 4.3.1 discusses vessel traffic. Commercial vessel traffic information was obtained from USCG (2002 to 2004), the Port of Hueneme (2004), and the Port of El Segundo (2004). Recreational and fishing boat traffic data was provided by the National Park Service (2003) and the Port of Hueneme (2004).

G434-69

See the response to comment G434-68.

G434-70

The National Park Service maintains records about the recreational vessel traffic that transits the Channel Islands National Park. Table 4.3-1 contains these data.

G434-71

Sections 4.3.1 and 4.3.4 contain information on vessel traffic between the FSRU and Port Hueneme. The Applicant has updated its projections of vessel traffic between Port Hueneme and the FSRU. Projected weekly vessel transits have been reduced. Table 4.3-3 has been updated with these revised projections. Impact MT-2 in Section 4.3.4 contains the revised analysis of potential impacts on maritime traffic.

G434-71

In one place (table 4.3-3), the DEIS estimates the number of "Minimum and maximum annual transits to the FSRU" as:

• Transits of LNG tankers to and from the FSRU	=	312
• Transits of tugs and support vessels between Port Hueneme and FSRU	=	
1,560		
TOTAL	=	1,872

¹⁰⁷ "Approximately 7,000 commercial vessel movements (events) through the Sea Range were estimated for a one-year period in 1995.... In 1995 there were about 3,583 vessel movements to and from the Ports of Los Angeles and Long Beach. Of those, 1,985 vessels entering the Sea Range from the north and west in route to ports of Los Angeles and Long Beach. There were 2,220 vessel departures from the same ports to the north and west. Statistical extrapolation of these numbers allows for annual traffic estimates through the Santa Barbara Channel Traffic Separation Scheme at 6,000 vessel movements, and 1,009 vessel movements through the Western Approach." Matrix, at 9.

¹⁰⁸ Matrix, at 9.

¹⁰⁹ I have crewed in several of these sail races from Santa Barbara to King's Harbor, and vividly recall passing directly through the FSRU location – along with hundreds of other sail boats..

Alternatively, Table 4.3-1 indicates:

• Transits of LNG tankers to and from the FSRU	=	312
• Transits of tugs and support vessels to and from site	=	832
TOTAL	=	1,144

These numbers amount to weekly transits of 36 or 22, respectively. But the DEIS/R states elsewhere that the total vessel transits would be 11 per week.¹¹⁰

Which accounting is to be believed? It would appear that the first, higher number (1,872 annual transits) would be closer to the truth, insofar as the applicant has specified that four tug transits would be made for each tanker visit; this would be 624 tug transits alone, which would comprise a disproportionate share of the total support vessel transits in the second accounting.

Assuming the higher number (1,872) is correct, it is still significantly too low, because the DEIS/R does not account for tanker traffic when the FSRU is running at *full capacity*. (Nor does it assess many other factors under full-capacity conditions!) The analyses are based on the assumption that the FSRU will be producing 800 million cu.ft. of gas per day; however, the specified peak production capacity is 1.5 billion cu.ft. per day. Keeping the FSRU supplied with LNG to achieve peak production would mean that the number of tanker transits could be as high as 585 annually.¹¹¹ That would represent an *additional 273* tanker transits over what has been specified. It would result in as many as 1.25 tanker trips per day, or 8.75 per week.

That in turn would raise the number of other potential vessel transits. The two tug trips specified for each arrival and departure of a tanker would add an additional 1,092 tug transits.¹¹² Supply and crew vessels transits would also increase by an unknown amount (not necessarily in direct proportion; to be conservative, let's estimate that they would increase by only 10 percent, from 936 to ~1,030).

Adding these additional transits to the specified base number of 1,872 results in a total of 4,267 transits per year.¹¹³ In other words, running the FSRU at (hypothetical) peak capacity could result in 2.3 times as many vessel transits as has been specified.

The implications are significant with respect to many of the various assessments. Traffic risks would of course increase substantially (and not necessarily linearly); environmental impacts of air and water discharges would increase; as would noise, aesthetic, and other impacts.

In addition, the DEIS/R fails to recognize that vessel traffic is not merely a function of *quantity*. The operation would be a complicating factor along the shipping lane. Tankers would enter and

G434-71
cont'd

G434-72

LNG carriers approaching and departing the Cabrillo Port FSRU would travel on the routes depicted in Figure 4.3-2 (also see Section 4.3.1.3). LNG carriers would neither cross nor enter the Santa Barbara Channel coastwise traffic lanes under normal operating conditions. The FSRU would be located about 2 nautical miles from the southbound coastwise traffic lane. Given this distance, its presence, under normal operating conditions, would not interfere with operations in the coastwise traffic lanes.

LNG carriers and commercial vessels longer than 65 feet (20 m) would be equipped with an automatic identification system (AIS) so that they would be able to detect other LNG carriers and other vessels. Also, LNG carriers would be responsible for adhering to the "rules of the road" for ship traffic. Section 4.3.1.4 describes safety measures to be used.

G434-72

¹¹⁰ [CITE.]

¹¹¹ Multiplying the stated 312 transits times 1.875 (the ratio of 15/8).

¹¹² 273 additional tanker transits times 4 tug transits each.

¹¹³ 1,872 + 273 tanker trips + 1,092 tug trips + 1,030 other support vessels.

exit the lanes at indeterminate points north and south of the FSRU, as well as in its vicinity.¹¹⁴ Due to varying sea and weather conditions and the freely-rotating orientation of the FSRU, these points would vary over several miles. (It'd be like having a freeway with different onramps and offramps every time you drove it.)

The DEIS/R states that approximately 250 large commercial vessels cross the traffic lanes to enter and leave Port Hueneme annually.¹¹⁵ This number represents a baseline measure of current shipping lane disruption in the project area. As noted in the first paragraph of this section, the Project would add at least another 936 annual transits, and as many as ~4,000 that would also cross shipping lanes (all support vessels would, regardless of origin; and some of the tankers would, as discussed below at "Tanker Approaches.") Thus, the Project would increase the number of lane crossings by a factor of 3 to 16 times. Moreover, the resultant increase in the *complexity* of traffic interactions represents a potentially significant unaddressed impact, beyond just the additional quantities.

Tanker approaches

Analysis of impacts of tanker approaches to the FSRU is incomplete; here are a few examples.

The bow of the FSRU would typically be headed into the prevailing WNW winds, or roughly towards Anacapa – the exact opposite of what is stated in the DEIS/R.¹¹⁶ Tankers would berth on its starboard side (closest to Oxnard). To achieve the specified orientation, incoming tankers would have to be turned as much as 270 degrees. It appears that the Applicant may have misstated the prevailing wind direction in order to conceal the amount of tanker spinning the tugs would have to do. Depending on sea conditions, such tanker spinning could be hazardous, in that at least three closely-linked vessels would be simultaneously altering their headings with respect to the prevailing swell direction; there could be lots of fender-bumping, with significant (unaddressed) potential for accidents.

In any case, given that tugs won't be used until the tanker reached its final approach, the tanker would have to steer a wide loop to approach the FSRU from the landward side: either by 1) heading in near Anacapa Island and coming about clockwise, or 2) heading in towards Pt. Dume and coming about in a counter-clockwise direction. In the first case, this could require that they transit through the CINMS zone – an approach that may be illegal, and at best is against guidelines.

In the second case, heading towards Malibu and coming about counterclockwise, the tankers would have to cross the Southbound shipping lane against traffic -- twice. Clearly that should be prohibited. Thus, assuming the FSRU would most often be moored heading into the prevailing winds and currents, there may be no safe approach route for tankers. What is a tanker's "turning radius," worst-case? How far within CINMS might that penetrate?

¹¹⁴ "Marine traffic will enter and leave via the existing shipping lane." Matrix, at 27.

¹¹⁵ 4.3-4.

¹¹⁶ [CITE.]

G434-72
cont'd

G434-73

G434-73

See the responses to Comments G434-71 and G434-72. Section 4.3.4 discusses impacts associated with the increased vessel traffic due to the proposed Project.

G434-74

Figure 4.3-2 provides the tanker approach and departure route. This route has been agreed upon by the Applicant, USCG, and the U.S. Navy.

G434-75

As discussed in G434-72, the LNG carriers would neither cross nor enter the TSS. Under normal operating conditions, the LNG carriers would only approach Cabrillo Port from the south and would not enter the existing boundaries of the CINMS, either during approach or departure.

G434-74

G434-75